



FATS AND PROTEINS RESEARCH FOUNDATION, INC.

3150 DES PLAINES AVENUE • DES PLAINES, ILLINOIS 60018
(5 MINUTES FROM CHICAGO'S O'HARE AIRPORT)

TELEPHONE AREA CODE 312 827-0139

THE DIRECTOR'S DIGEST
D. M. DOTY
TECHNICAL DIRECTOR

June 18, 1965
No. 12

You will recall that Professor E. Grant Moody, Arizona State University, did some dairy cattle feeding tests last summer with added animal fat in the ration. This work was supported in part by a grant from FPRF. Preliminary results were reported in the December 16, 1964 issue of the "Director's Digest".

Professor Moody has now completed the analysis of the data and is presenting a paper "Sodium Acetate and Stabilized Tallow in Low Fiber Summer Dairy Rations" covering this research at the American Dairy Science Association meeting June 20-23. The following resume' summarizes some of the more important points from this paper.

When dairy cattle are subjected to summer heat stress, experience has demonstrated that replacing part of the hay with concentrate will help alleviate the stress and aid in maintaining milk production and milk fat content. Some theoretical considerations suggest that the inclusion of sodium acetate and/or fat in the ration concentrate would be especially effective. To test this hypothesis, a double reversal feeding trial was designed to determine the effect of acetate and fat, singly and in combination, in low fiber rations. Twenty-four cows producing over 60 lbs. of 3.3% milk were randomly assigned to receive one of four rations: Ration 1 (control) included barley, cottonseed meal, molasses, salt and milo,; in ration 2, 2% of the milo was replaced by sodium acetate; in ration 3, 6% of the milo was replaced by a commercial stabilized animal tallow; and in ration 4, 8% of the milo was replaced by acetate and fat. Alfalfa hay was fed at a level of 1 1/4 lbs. per 100 lbs. of body weight to furnish approximately 1/3 of the energy intake. Each feeding period was four weeks with the first week in each period used for ration adjustment.

Some of the more interesting and significant results are shown in Table 1. Milk fat was increased both by added acetate and fat, the acetate having the greater effect. There was no influence of the ration upon the amount of milk nor the solids-not-fat produced (data not given here). Although acetic acid levels in the rumen were not affected by either fat or acetate feeding, propionic acid was reduced and butyric acid

Table 1. The Influence of Fat and Sodium Acetate in Dairy Cattle Rations.

Ration	Milk	Milk Fat	4% Corrected	Rumen Volatile	
	Fat	Yield	Milk	Fatty Acids (M %)	
	%	(lb. daily)	(lb. daily)	propionic	n-butyric
Control	2.36	1.19	38.3	35.1	26.2
6% fat	2.49	1.27	39.4	32.3	32.7
2% acetate	2.70	1.37	40.7	28.3	34.0
Acetate + Fat	2.64	1.37	41.4	25.5	34.7

Means not bracketed together are significantly different.

was increased by acetate and fat. This may have contributed to the beneficial effect on the milk fat level. The data reported here would suggest the desirability of including both sodium acetate and stabilized animal fat in the summer ration of dairy cows if such a practice were economically feasible.

To confirm these results Professor Moody will repeat the test this summer with FPRF support. The test this summer will include one lot fed a ration in which part of the fat is replaced with an equivalent amount of sucroglyceride. This is suggested because of the good response obtained from feeding suroglyceride in the beef cattle feeding trials made by Professor Wise at the North Carolina Agricultural Experiment Station (see "The Director's Digest", February 26, 1965, No. 8). In addition arrangements are now nearing completion for feeding trials to determine the effect of fat and sucroglyceride in the ration of dairy cows maintained under controlled high and low temperatures.

NEWS NOTES

The Research Committee and Board of Directors of FPRF will meet July 13 and 14, respectively, at The Flying Carpet Motor Inn, Des Plaines, Illinois. At these meetings the current program will be carefully evaluated and plans formulated for the next fiscal year. Any suggestions relating to FPRF activities should be sent to the Technical Director or to a Director prior to these meetings.